

Jan - August 1968

SASMEE

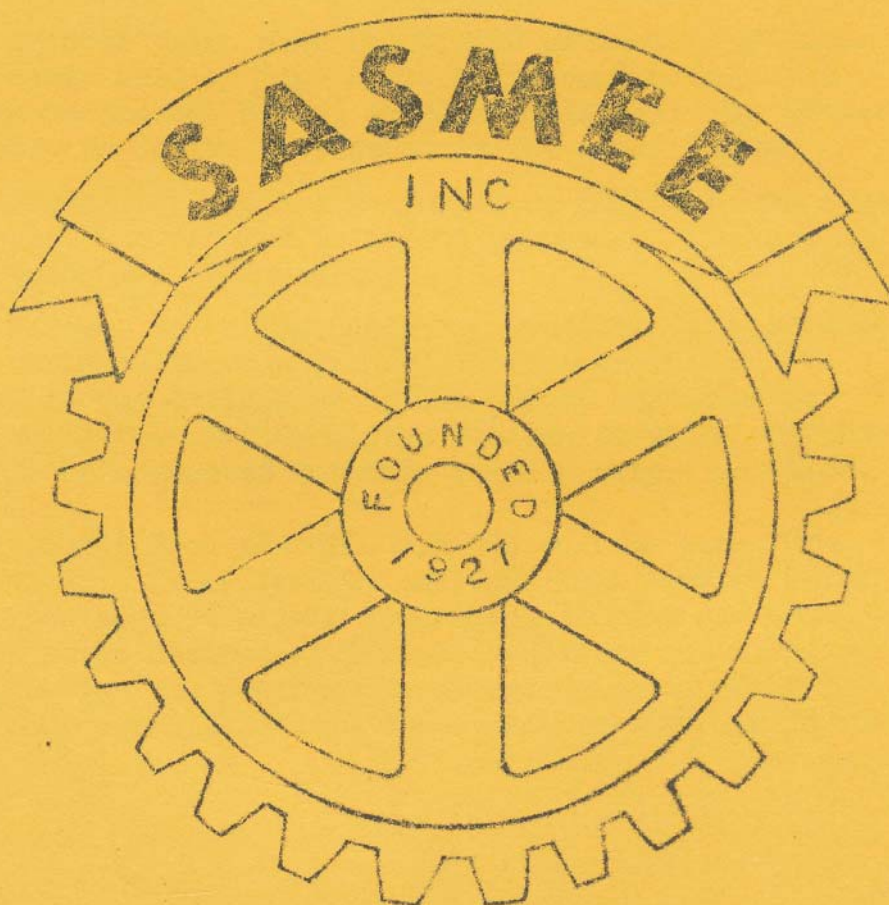
SOUTH AUSTRALIAN SOCIETY OF MODEL
& EXPERIMENTAL ENGINEERS

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BULLETIN

THE OFFICIAL JOURNAL OF THE SOUTH AUSTRALIAN SOCIETY

OF MODEL AND EXPERIMENTAL ENGINEERS.



EDITORIAL

The Annual Election of Officers which was held after the Annual General Meeting on 14th May has produced only 3 changes in the list of Office Bearers.

The decision of Max Dunkley to step down from the Committee created a vacancy which was filled by Charles Hill.

Paul Grisetti takes over the Office of Loco-track Supervisor, formerly held by Alan Boreham, in conjunction with Ralph Stephens and Bob Brown, and John Mell will now partner Mark Grimshaw as Boiler Attendants in the Steam House.

John Wakefield, who has performed an admirable job over the past year, was elected President unopposed, likewise our estimable Treasurer, Ralph Excell.

Fred Hercus, as acting Chairman, conducted the proceedings in a workman-like manner, and at the conclusion suggested that the Offices of Boiler Safety Committee be held open until the next Committee Meeting at which suitable members will be nominated for this very important position.

Owing to the fact that the A.M.B.S.C. Code came into force on May 1st, it is readily realised that members with technical knowledge of silver soldering, brazing and metal working are to be desired to fill this Office, and to be able to supervise the progressive stages of Boiler Construction and generally advise those members with little

experience of this highly important side of modelling.

As it has been your pleasure to re-elect me as Secretary I shall endeavour to carry out your wishes to the best of my ability, and would be very pleased to receive articles for the 'Bulletin' and any suggestions for improving it. For the benefit of new members my address is as follows :

C. Burden,
123, Allinga Avenue,
Glenunga 5064.

Tel: Private 79,5292. Bus. 23,3866 Ext. 339.

The Steam Locomotive Society of Victoria is to be congratulated on the way in which the Convention was held at Moorabbin during Easter. The catering was first class and the ladies who handled it deserve a well earned "thank you".

On another page I will endeavour to give you a resume of the four days during which the sole topic of conversation was "Steam".

Owing to radiator trouble with my car on the trip to Melbourne I did not arrive until late on Easter Saturday morning so must depend upon others for Fridays and Saturdays happenings. This same trouble brought home to me the great fellowship which exists among Model Engineers, and thanks to Allan Berriman and other Victorian Members who assisted with repairs we were able to resume our trip.

Commencing with our June General Meeting the supper canteen will be manned by 2 members, called upon by the President, the names will be in alphabetical order.

This system will eliminate last minute hold-ups owing to a rostered members absence,

QUARTERLY AGENDA

GENERAL MEETINGS

1968

2nd Tuesday each month at 8.00 p.m.

11th JUNE

Film and slides by members.

9th JULY

Murray, Keith and Dave will give an informal talk on Steam Feed Water Pumps.

13th AUGUST

Annual Show of Work. Bring along your latest project, completed or otherwise and win a big prize???

INTERMEDIATE
MEETINGS

(Informal) 4th Tuesday each month at 8.00 p.m. 25th June, 23rd July, 27th August.

WORKING BEES

1st Saturday each month at 2.00 p.m.

PUBLIC FIELD DAYS

3rd Saturday each month at 2.00 p.m.
15th June, 20th July, 17th August.

FIELD DAY CANTEEN ROSTER.

<u>JUNE</u>	<u>JULY</u>	<u>AUGUST</u>
G. THOMAS	A. BOREHAM	O. THOMAS
J. DAVEY	B. HOMAN	L. PECKHAM

PLEASE REMEMBER TO BRING THE MILK

NOTE: IF UNABLE TO ATTEND AS PER ROSTER,
PLEASE PHONE SECRETARY - Ph.79.5292
SO THAT A RESERVE CAN BE NOTIFIED
IN TIME.

ROSTER FOR LOCKING UP ALL BUILDINGS AND GATE

<u>JUNE</u> 1st	T. ENGLAND	<u>JULY</u> 27th	B. BROWN
8th	J. WAKEFIELD	<u>AUGUST</u> 3rd	T. ENGLAND
15th	C. HILL	10th	J. WAKEFIELD
22nd	A. BRABHAM	17th	C. HILL
29th	J. WELCH	24th	A. BRABHAM
<u>JULY</u> 6th	D. IRVING	31st	J. WELCH
13th	N. KERNICK	<u>SEPT.</u> 7th	D. IRVING
20th	O. THOMAS	14th	N. KERNICK

FOR SALE:

MYFORD LATHE, complete with chuck, motor, etc.,
good condition.
Phone R.M. Giesecke 71.8418.

Kyle Woodley, 1 Nelligan Street, Whyalla Norrie 5608, would be very pleased to hear from any Members who would make the trip to Whyalla taking their locos and other models to assist a school fete to be held on 28th September. For further details contact Kyle direct.

QUARTERING WHEELS.

The subject of quartering no doubt is one which causes the beginner some consternation, although most of the experienced hands have their pet procedures. This is mine.

Having turned the driving wheels complete, bored the central hole, I turn to the manufacture of a simple drill jig. This jig had a spigot location for the central hole and another hole to take 2 bushes, one for pilot drilling and the other for reaming the correct Crank pin hole size. It was made up of a piece of plate $1\frac{1}{2}$ wide $\frac{3}{8}$ thick and $5\frac{1}{2}$ long, with the axle location spigot in the centre. Out of a total of 16 driving wheels for the garret, 8 were drilled and reamed at this stage only for the crank holes. The axles were then manufactured fully, bearings placed on and the drilled and reamed wheels pushed on (right home). Bearings were then placed on the other side and the un-drilled and unreamed wheels after positioning approximately were also pushed on fully home.

Then a flat plate approximately $6" \times 4" \times \frac{1}{2}"$ was 'acquired' and using a drill jig, 2 holes were drilled one to take a 60° screwed cone centre, and the other a plain spigot which was a neat fit in the crank pin holes.

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Two pillars were then machined out of 1" dia. bar tapped at each end to take ordinary whitworth bolts (3/8) and long enough to hold the drill jig and the 2nd plate apart so the wheel assys could pass through endwise.

This contraption was then set up such that the two axle centre locations were exactly in line and the crank locations were exactly in line and bushes at 90° or as near as possible. The plain axle spigot of the drill jig was changed for a plain 60° centre and this together with the screwed 60° centre on the 2nd plate located the wheel axle centres. The 2 plates were then bolted up solid. All that was left now was to place the wheel assys. in the new built up jig by locating the drilled and reamed wheel on its crank location and screwed centre and tighten up until the hole was located top and bottom. The 2nd wheel was then drilled and reamed for the crank pin.

This method was chosen because I had a large number of axles to assemble at one time, and also because of my anxiety at gaining the necessary accuracy with only a 0.7" throw.

It was necessary to make this jig in toolmaker standard and with the cone centres concentric to their major dias.

This proved highly successful and although I haven't the gear to check very accurately whether the cranks are at 90°, at least they are ALL THE SAME.

R. G. BROWN.

STEAM PUMPS

The idea of a donkey pump feeding a model locomotive boiler has been an ambition for a long time, the first pump that I saw working well was the late Eric Prices' though this pump did everything asked of it, it was not exactly the model that I was looking for.

Then later Jim Ranford of N.S.W. came to light with a pump that worked well and looked ideal, and after studying the drawing for some time I decided to try and plan a pump without the rocker shaft visible. This eventually led me to my good friend John Norris, who showed me a spare top cover of the donkey pump from an R.X.

Though I built a top cover along these lines, I had my doubts that it would work, being far too fine to scale, I then redesigned the cover to suit and came up with the present model though the first pump I made I fabricated the top. This worked O.K., but there could be problems with so much silver soldering, so I used a casting on the second pump. Both pumps still work O.K., they increase the water level in the loco with ease at home in the workshop, but on the track at the club I found that after an hours running they became sluggish. I think there are several factors causing this -

- (1) Steam supply outside of boiler and pan too long.
- (2) Needs a better designed displacement lubricator.

I feel that with so many of the club members interested, and with their better ideas of construction this pump should be a great success.

KEITH BRADFORD

EDITOR'S COMMENTS:

For the benefit of members (myself included) perhaps a short explanation of the principle employed in these pumps would be of assistance to those desirous of building one.

The pump consists of 2 cylinders mounted vertically and connected by a common piston rod. The upper cylinder is the steam operated end just like a loco cylinder, i.e. double acting with valves to control steam vents. The motion of the rod then drives the piston in the lower cylinder, which is also double acting and on both strokes draws water from tender and pumps to the boiler via the medium of small ball valves.

The action of the steam piston requires 3 valves, namely the shuttle valves and 2 D valves. The shuttle valve is actually a piston valve as per loco practice and moves backwards and forwards in a steam tight bore. The motion at the shuttle is used to move over ports a tiny D valve which in turn controls admission and exhaust to the steam cylinder. The shuttle valve is in turn under the control of another D valve which is operated by a trip rod inside the hollow main piston rod.

This seems horribly complicated but the action is very difficult to put on paper, but once you have seen a drawing it is quite simple and Keith assures me that anyone who has built a loco should not experience any difficulty in constructing a successful pump.

At this stage there is no question of detailed plans and drawings because several members are still experimenting, but once a design has been evolved which combines reliability, ease of construction and efficient operation an effort will be made to have a sheet printed showing all details.

FROM R.W. BROOKER.

I am writing to tell you about the models I own, as asked by you.

I have built a 32" cabin cruiser, with fibreglass hull and plywood superstructure, powered by a large Taycol electric motor. However, last year the family car was stolen while it had the 2 x 6 volt accumulators, plus various other tools in it. Then I purchased a 2½ cc marine diesel for the boat.

At present I am building a 42" 'bread and butter' type hulled roll-on, roll-off ferry, very similar to the Trowbridge, with the Taycol motor (electrical) and hope to be able to install radio-control (3 channels probably).

I recently spent an interesting afternoon in Bob Brown's workshop.

A Sheraton 4½" centre lathe (fitted with a quick change gearbox) takes care of turning operations, whilst a sturdy drill press constructed by Bob looks after that side of model building.

The lathe is equipped with the usual chucks and steadies and also a vertical slide.

Handy gas supplies heat for brazing and the usual hand tools found in a workshop complete Bob's set-up.

Interested in black and white photography, I was shown some excellent enlargements of ships he has snapped at Port and Outer Harbour.

Hanging on the wall is a photo about 5 ft. long of a S.A.R. Mountain Type Loco.

On the bench top is a section of $2\frac{1}{2}$ " gauge track, with points, for easy handling of the Garret he is building.

Bob hopes to have it running about the end of this year. As most of us have seen it in its various stages of construction I will not attempt to describe it.

BRITANNIA IN 5" GAUGE BY C. BURDEN.

When I so rashly offered to write of my experiences in the construction of my Loco it was done with the idea of setting the ball rolling with the wish that it would encourage my fellow members to come out of their shells and give us the benefit of their experiences and thus help to make our Bulletin more interesting.

The response has been most gratifying as the following articles on wheel quartering and feed pumps will show.

To get back to Britannia, I soon realised that I would be trying to emulate L.B.S.C., so I have therefore divided the construction into various headings with a brief description of how I tackled same.

Main Frames: Material, black mild steel, $3/16$ " thick.

Two pieces of the necessary size were bolted together (I prefer bolts to rivets) after marking out the required shape and position of holes to be drilled. A line was then scribed slightly over $1/8$ " outside of finished size and centre

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popped at $7/64$ " centres. An orgy of drilling then ($1/4$ ") followed and the waste pieces carefully knocked out. Having access to a powerful grinding wheel made the job of cleaning up the V shape pieces of metal between each hole easy and then an hour or so with the file brought the frames to a reasonable state of mind.

The trailing frame supporting fire box and pony truck and also the bogie were cut out in the same manner.

The horn blocks (cast in gunmetal) were then machined in my mill, using an angle plate as a jig to ensure alignment and then riveted to the frames.

Next came the axle boxes (phosphor bronze cast in a stick of 3). These were set up also on an angle plate, machines all over and then bored. This method proved very successful for when a trial axle was fitted to the assembly it rotated without any sign of binding.

Springs were wound on the lathe, using 16 gauge piano wire and the necessary spring bolts and keeps fashioned from mild steel.

Wheels were the next job and thanks to Morrie, who lent me all of his patterns, I had them cast at a local foundry.

Machining followed the usual practice and to obtain similar diameters, I mounted each wheel in turn on a stub turned on the outer end and gripped in a 4 jaw chuck. Then without moving the slide rest, the last ten thou. or so was removed using a tipped tool for the job.

Using the lathe (in a manner described in an old issue of M.E.) wheel quartering was carried out without a hitch.

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Prior to this feed water pump eccentrics and crank pins had been fitted.

The twin pumps (partly of my own design) were constructed from bronze castings fitted with a $3/8$ " dia. stainless steel ram with a stroke of $5/8$ ".

They have proved over approximately 150 miles of running to be more than adequate to maintain boiler level and have given no trouble.

Owing to the fact that a lot of running is done at my home track with a radius of 23 ft. some modification was necessary to allow the pony truck to move from side to side. This was accomplished by setting the trailing frames about $3/4$ " closer than normally it should be.

The pony truck was not constructed as per L.B.S.C. drawing, but I adopted in principle a design in Martin Evans Manual.

It eliminated brazing of which at the time I was not familiar with, and the result was a sturdy unit which performs quite well. Tender wheels, axles and frames followed the method outlined above. The water tank and coal compartment was constructed from nickel silver (or German silver) all joints copper riveted and soft soldered. The hand pump follows the standard type of fitment.

To be continued.

PATRON

Mr. R.J. Fitch

Commissioner, S.A.R.

VICE-PATRONS

Mr. A. W. Crossman

C.M.E. S.A.R.

Mr. C. Schaumlöffel

Loco Superintendant S.A.R.

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